

CLAIMS

What is claimed is:

1. A catheter introducer, comprising:

(a) a body including an outer surface defining a lumen and having a proximal end and a distal end; and

(b) an expandable tip on the distal end, the expandable tip including a
5 sidewall that is continuous and non-convoluted in an unexpanded state and including an opening axially extending therethrough and configured, upon insertion of a device having a larger outer diameter than the inner diameter of the expandable tip, to permit passage of the device therethrough, the expandable tip being configured to expand commensurately with a difference between the outer diameter of the device and the inner diameter of the
10 expandable tip,

wherein the expandable tip comprises a tubular wall having an axially extending weakened portion formed from (1) at least two axially aligned slit segments and (2) at least two axially aligned segments that are strengthened when compared to the slit segments, one of the strengthened segments being positioned between two of the slit
15 segments and another of the strengthened segments being formed between a distal-most slit segment and a distal end of the expandable tip.

2. The catheter introducer of claim 1, wherein at least one of the strengthened segments comprises a scored segment having a wall thickness greater than a thickness of the expandable tip wall at the slit segments but less than a thickness of the remainder of the expandable tip wall.

5

3. The catheter introducer of claim 2, wherein the slit segments and the scored segments are formed in an outer peripheral surface of the expandable tip wall.

4. The catheter introducer of claim 1, wherein the body is formed from a material comprising a polymeric material.

5. The catheter introducer of claim 1, wherein the weakened portion of the expandable tip comprises at least four axially aligned slit segments.

6. The catheter introducer of claim 1, wherein the tubular wall of the expandable tip has at least two axially extending weakened portions.

7. The catheter introducer of claim 7, wherein the two weakened portions are offset from one another by about 180°.

8. The catheter introducer of claim 1, wherein the slit segments extend at least essentially through the depth of the expandable tip wall.

9. The catheter introducer of claim 1, wherein the slit segments extend through at least about 90% through the depth of expandable tip wall.

10. The catheter introducer of claim 9, wherein the slit segments extend through at least about 99% of the depth the expandable tip wall.

11. The catheter introducer of claim 1, wherein at least one of the strengthened segments comprises a scored segment extending through about 10% of the depth of the expandable tip wall.

12. The catheter introducer of claim 11, wherein the scored segment extends through about 20% of the depth of the expandable tip wall.

13. A catheter introducer, comprising:

(a) an elongate, hollow body having a distal end and a proximal end;

(b) a hub disposed at the proximate end, the hub being configured to permit communication between the hub and the body; and

5 (c) a tip disposed at the distal end and including a sidewall that is continuous and non-convoluted in an unexpanded state and including an opening extending axially therethrough, the opening being selectively radially expandable to permit passage through the tip of a device having a larger outer diameter than the inner diameter of the

tip, the tip being configured to expand commensurately with a difference between the outer diameter of the device and the inner diameter of the expandable tip,

wherein the expandable tip comprises a tubular wall having an axially extending weakened portion formed from (1) at least two axially aligned slit segments and (2) at least two axially aligned segments that are strengthened when compared to the slit segments, one of the strengthened segments being positioned between the slit segments and another of the strengthened segments being formed between a distal-most slit segment and a distal end of the expandable tip, at least said one of the strengthened segments comprising a scored segment having a wall thickness greater than a thickness of the expandable tip wall at the slit segments but less than a thickness of the remainder of the expandable tip wall.

14. The catheter introducer of claim 13, wherein the body is tapered such that the distal end is narrower than the proximal end.

15. The catheter introducer of claim 13, wherein the slit segments are formed in an outer peripheral surface of the expandable tip wall.

16. The catheter introducer of claim 15, wherein the body is formed from a material comprising a polymeric material.

17. A method of inserting a medical device having a larger outer diameter than an inner diameter of a catheter tip of a catheter introducer through an opening in the catheter tip, the method comprising:

(a) cannulating a vein or artery with a needle and the catheter introducer, the catheter introducer being disposed over the needle and the catheter introducer including an expandable tip on a distal end thereof, the expandable tip including

(i) a body including an outer surface defining a lumen and having a distal end and a proximate end; and;

(ii) an expandable tip on the distal end, the expandable tip including an opening axially extending therethrough and an axially extending weakened portion formed from (1) at least two axially aligned slit segments and (2) at least two axially aligned segments that are strengthened when compared to the slit segments, one of the strengthened segments being positioned between the slit segments and another of the strengthened segments being formed between a distal-most slit segment and the distal end of the expandable tip,

(b) removing the needle from the catheter introducer;

(c) inserting a medical device into the body, the device having a larger outer diameter than a minimum inner diameter of the expandable tip;

(d) inserting the medical device through the lumen of the body; and

(e) inserting the medical device through the opening of the expandable tip, thereby expanding the expandable tip as a result of the insertion of the medical device through the tip; and then

(f) removing the catheter introducer from the patient's body while leaving the device in place.

25

18. The method of claim 17, wherein the device comprises a guidewire.

19. The method of claim 18, further comprising, after the removing step, inserting a peripheral or central venous or arterial device over the guidewire and into the vein or artery, and then removing the guidewire from the peripheral or central venous or arterial device

20. The method of claim 18, wherein the peripheral or central venous or arterial device comprises a PICC line.

21. The method of claim 17, wherein the expanding step comprises splitting the distal end of the expandable tip at least one of the weakened portions and expanding a width of at least one of the slit segments.